

William M. Briggs at wmbriggs.com

I just encountered your wonderful website. What a feast -- food for the mind.

I'd like to converse on this paragraph in your January 6, 2015 posting:

> That's the small error. The big one is where she says scientists "will accept a causal claim" when wee p-values are found. It isn't Oreskes that's wrong. Scientists will accept a causal claim in the presence of p-values. Problem is they should not. A wee p-value does not prove causality. A non-wee p-value does not—it absolutely DOES NOT—say that the results "occurred by chance". No result in the history of the universe was caused by or occurred by chance. Chance or randomness are not causes. They are states of knowledge, not physical forces.

I agree that chance is not something that exists in reality. But human causality complicates things. One should not say, "the news alert on traffic caused me to choose another route". Instead, one should say "I chose a different route because of (due to) the news alert". But, I see the metaphysical status of chance as being a secondary issue.

IMHO, the primary issue involving chance is whether it is a premise or a conclusion in an argument.

> The chance of the observed outcome (or those more extreme) is unlikely .....

- a. ...if due entirely to chance [4th most common on web:  $3 \times 10^1$ ]
- b. ...to be due to chance [3rd most common on web:  $3 \times 10^3$ ]
- c. ...due to chance [2nd most common on the web:  $3 \times 10^5$ ]
- d. ...by chance. [Most common on the web:  $9 \times 10^6$ ]

The first is Frequentist (chance is the premise); the second is Bayesian (chance is the conclusion). The 3rd and 4th are ambiguous about the logical status of chance. Note that the ambiguous and Bayesian forms (b, c and d) are much more common than the Frequentist form (a).

By moving from chance as a premise to chance as a conclusion, one moves from Frequentist to Bayesian. But the truth of the Frequentist claim doesn't guarantee the truth of the Bayesian inverse.

I'm very new to your site, so if you have written on this topic just direct me to the appropriate article(s).

Milo

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I gather that this contact form eliminates all the line breaks and spacing. This may make my e-mail almost incomprehensible. I placed this e-mail with formatting at

> [www.StatLit.org/pdf/2015-Schild-Briggs1.pdf](http://www.StatLit.org/pdf/2015-Schild-Briggs1.pdf)

Milo

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